2024

RITN Tabletop Exercise (TTX) After-Action Report/Improvement Plan

Exercise Date: July 18, 2024
Report Date: July 23, 2024

EXERCISE OVERVIEW

Exercise Name	2024 RITN Tabletop Exercise (TTX)
Exercise Date	July 18, 2024
Scope	The exercise was a distance-based tabletop exercise scheduled for 2.5 hours. Exercise play was limited to RITN facilities to examine the response by RITN hospitals to accommodate patient surge and care to include identifying alternate care sites, and address crisis standards of care.
Mission Area(s)	Response
Capabilities	Medical Surge
Objective	**Objective 1:** RITN hospital staff can determine their hospital's capacity to accept a patient surge from a distant Improvised Nuclear Device (IND) detonation to include staff, space, and supplies. **Objective 2:** RITN hospitals identify alternate care sites that can be used for patient triage, screening, and treatment. **Objective 3:** RITN hospitals discuss the procedures for implementing Crisis Standards of Care (CSC) to include citing plans and expertise that would be leveraged and key decisions.
Hazard	Radiological
Scenario	Medical surge from a distant radiological incident
Sponsor	Radiation Injury Treatment Network® (RITN) Office of Naval Research (ONR)
Participating Organization	University of Kentucky Medical Center (Lexington, KY) Corewell Health DeVos Children's Hospital (Grand Rapids, MI) Corewell Health (Grand Rapids, MI) Presbyterian/St. Luke's Medical Center (Denver, CO) UNC Hospitals (Chapel Hill, NC) Children's Hospital of Philadelphia (Philadelphia, PA) Stanford (Palo Alto, CA) Fred Hutchinson Cancer Center (Seattle Washington) University of Iowa Health Care (Iowa City, IA)
Point of Contact	RITN Control Cell RITN@NMDP.ORG

(612) 884-8276

EXERCISE SUMMARY

On July 18, 2024, seven Radiation Injury Treatment Network (RITN) centers participated in an online tabletop exercise (TTX) to determine their hospitals' capacity (e.g., staff, equipment, supplies) to receive inpatient and outpatient causalities through the National Medical Disaster System (NDMS) following a mass casualty radiological event. A facilitated series of exercise tasks were provided to participants for their consideration, response, and group discussion organized by the exercise scenario summary below.

Scenario Summary: The following points illustrate the scenario events considered for participant discussion:

Exercise Scenario

- A 10-kiloton Improvised Nuclear Device (IND) was detonated in a major metropolitan area.
- The blast occurred at least 500 miles from your hospital and there is no concern of fallout affecting your location.
- RITN Control Cell staff begin to monitor the situation and start sending out daily Situation Reports (SitReps).
- Expect many people to arrive in the next week.
    - Those with mild to moderate trauma and those seeking evaluation for radiation exposure will self-evacuate to other metro areas.
    - Other patients experiencing radiation exposure will be evacuated in the coming days through the NDMS.

ANALYSIS OF CAPABILITIES

Module 1: Patient Surge Capacity

Exercise participants were tasked to complete the Exercise Survey and provide feedback on compiling the necessary data to complete the report along with any challenges experienced. Eight (8) hospitals submitted their responses via the RITN Exercise Survey. Hospitals provided the following list of key initial actions they would undertake to prepare for patient surge:

- Initiate command center;
- Assess hospital capacity, bed availability, and supply levels;
- Identify locations for screening, triage, and decontamination;
- Make internal staff notifications;
- And open communication with local partners including the local Healthcare Coalition.

Seven (7) hospitals reported the ability to receive anywhere from 20 to more than 250 inpatients. The eighth hospital did not have sufficient time during the exercise to capture a specific number. Hospitals would be able to implement surge protocols between immediately and seven days and these changes could be sustained for several weeks, if needed depending upon current patient volumes. Patients admitted for transplants, elective procedures, patients considered low acuity, or non-critical patients could be transferred out to either facilities with existing agreements or to other facilities within hospitals' systems. However, the two pediatric hospitals that participated in this exercise reported that the ability to transfer patients to other facilities would be extremely limited due to the small number of pediatric hospitals in their areas. The number of outpatients that could be supported for radiation monitoring and outpatient care varied widely depending on the facility from 57 to more than 1,000. Factors that would affect these numbers included available staffing, supplies, capacity, housing, and existing patient populations. All eight responding hospitals reported having a plan for large-scale, long-term complete blood count (CBC) collection from patients arriving from the area surrounding the scene.

The mental health of staff would primarily be supported by resources such as social work, pastoral care, regular briefings, and critical incident stress management (CISM) teams. When coordinating public messaging with their healthcare coalitions, hospitals would act as subject matter experts (SMEs) in addition to providing resources, support, and information.

Strengths

The following strengths were demonstrated:

Strength 1: Six (6) out of eight hospitals were able to identify either system-level facilities or facilities with existing agreements to direct patients/procedures to help facilitate decompression.

Strength 2: All eight responding hospitals reported having a plan for large-scale, long-term complete blood count (CBC) collection from patients arriving from the area surrounding the scene.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: Several facilities indicated that it would take them three or more days to implement changes in order to receive additional inpatients. It is recommended that these facilities examine ways to decrease this timeline to more quickly receive inpatients.

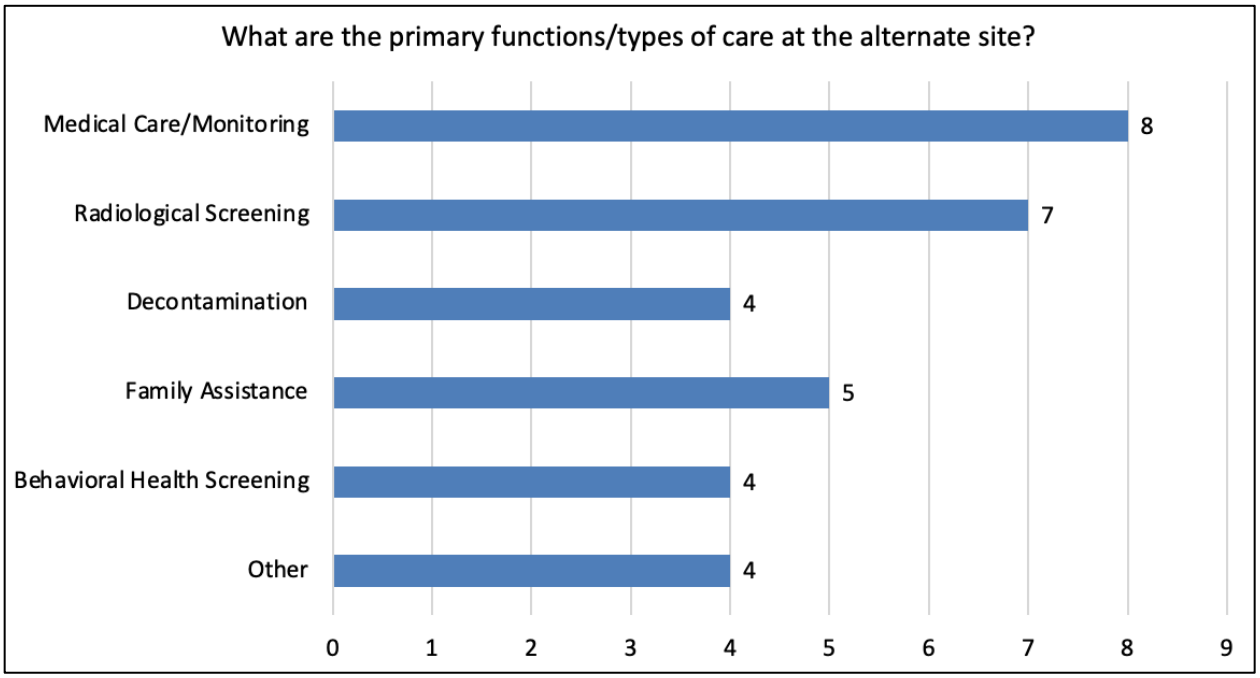
Module 2: Alternate Care Sites

This module focused on alternate care and the resources required to maintain alternate care sites including staff, physical space, and training.

Hospitals identified spaces either within their facilities or outside their facilities that could serve as alternate care sites (ACS) including internal spaces such as conference rooms, cafeterias, and clinics, as well as external spaces including parking garages, local schools, and other system-level spaces.

Adverse weather that is not considered extreme would not greatly impact decisions. Most hospitals reported that their ACS's are located in physical, permanent structures to avoid any potential weather-related issues but most facilities also had solutions to common weather-related concerns. The primary impact the weather could have would be on patient transport.

Below is a graphic illustrating the functions/types of care hospitals reported to be offered at ACSs:



"Other" functions or types of care include collection/testing, monitoring activities, wellness screening, housing, receiving centers, and registration.

ACSs will be staffed by emergency department (ED), nuclear medicine, hematology/oncology, outpatient site team members, local medical school students, and state partners.

Only three hospitals would require the use of volunteers to staff an ACS while the other five hospitals either would not or were unsure if volunteers were required. Volunteers would be obtained from internal volunteer services, nursing or medical students, and the American Red Cross (ARC). Just-in-time (JIT) training would primarily include basic training on radiation as well as site-specific safety and equipment training. All hospitals indicated that staffing ratios would or could be adjusted as a result of an increase in patient numbers. Staffing ratios would be adjusted depending on evaluation of the patients presenting to the hospital. Waivers would either be requested or are already in place. As long as the hospital has adequate staffing and resources, ACSs could be sustained for days to months as needed with the understanding that if patient care is not impacted immediately, it would begin to impact patient care delivery at some point.

Strengths

The following strengths were demonstrated:

Strength 1: Plans and procedures already exist for standing up ACSs; hospitals are also able to draw on previous experience with patient surge and ACS operations from the COVID-19 pandemic.

Strength 2: Numerous resources exist for staffing ACSs including volunteers and nursing/medical students.

Strength: All hospitals are prepared to adjust staffing to patient ratios to some degree depending upon staff availability and patient acuity.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: The length of time an ACS could remain activated and the impact on routine patient care is reliant upon the resources available, especially staff.

Area for Improvement 2: Two (2) out of eight hospitals were unsure if volunteers would be required to staff a ACS. It is recommended that these hospitals clarify this and outline it in any existing ACS plans.

Module 3: Crisis Standards of Care

Several triggers exist for implementing CSC including staffing levels, resources available, number of patients, and anything else that may impact the normal care of a patient. Two facilities reported that CSC is determined at the state level while a third facility does not yet have a clear CSC policy in place. There are strategies and plans utilized during the COVID-19 pandemic response that exist to prolong care capacity given a shortage of resources. Seven (7) out of eight hospitals reported that a national disaster declaration would not be sufficient to implement CSC. Additionally, three of the responding hospitals have an internal CSC plan while five would rely on overarching guidance from the state. All eight responding hospitals reported having a committee to make decisions regarding the implementation of CSC.

Six (6) of the responding hospitals indicated that there are ethical codes/guidance in place at the state/city/county level regarding the implementation and use of CSC. For those hospitals where ethical codes/guidance don't exist, the severity of exposure/likelihood of survival would be the primary factor considered when making decisions on use of resources. When integrating CSC guidance into public messaging, information is coordinated through the county or state. While some hospitals indicated that specific information regarding CSC would be limited, others would include a clear picture of current conditions and the available level of care that can be expected at healthcare facilities.

Strengths

The following strengths were demonstrated:

Strength 1: Hospitals are aware of and understand the triggers that exist either within their facilities or at the state/federal level for implementing CSC.

Strength 2: Ethical codes, policies, or other priority determining factors exist across all hospitals regarding decision making on the use of resources.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: One facility reported that they do not yet have a clear set of CSC in place. It is recommended that this be a priority in any planning efforts moving forward.

APPENDIX A: IMPROVEMENT PLAN

This improvement plan template has been developed specifically for the RITN centers participating in the 2024 RITN Tabletop Exercise conducted on July 18, 2024. RITN centers can utilize this table to organize the opportunities for improvement to augment and develop their own corrective actions. The improvement plan is intended to strengthen the response of RITN hospital core capabilities identified in this report.

Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element[1]	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Core Capability 1: [Capability Name]	1. [Area for Improvement]	[Corrective Action 1]					
		[Corrective Action 2]					
		[Corrective Action 3]					
	2. [Area for Improvement]	[Corrective Action 1]					
		[Corrective Action 2]					

[1] Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations		
Organization	Name	Email Address
Children's Hospital of Philadelphia	Brian Barth	
Children's Hospital of Philadelphia	Adrienne Beckett-Ansa	
Children's Hospital of Philadelphia	Vanessa Le	
Children's Hospital of Philadelphia	Allison Walker	
Children's Hospital of Philadelphia	Patricia Hankins	
Children's Hospital of Philadelphia	Jocelyn Beale	
Children's Hospital of Philadelphia	Evan Peck	
Children's Hospital of Philadelphia	Naomi Deluca	
Children's Hospital of Philadelphia	Jacob Crist	
Corewell Health	Ellen Bristol	
Corewell Health	Alex Yored	
Corewell Health	Evan Boote	
Corewell Health	Christina Norgan	
Corewell Health	Jeremy Kelly	
Corewell Health	Brittany Switanowski	
GFIAA	Lisa Carr	
MSPEmHSD	Orville Theaker	
Corewell Health	Jodi Mendez	
Corewell Health	Missy Rykse	
Corewell Health	Scott Putnam	
Corewell Health	Emily Hop	
Fred Hutchinson Cancer Center	Julie Ibuki	
Fred Hutchinson Cancer Center	Lilly Fuentes	
Fred Hutchinson Cancer Center	Silvia Navas	
Fred Hutchinson Cancer Center	Renee LeBlanc	
Fred Hutchinson Cancer Center	Jennifer Kyle-Stokes	
Fred Hutchinson Cancer Center	Pam Gregory	
Fred Hutchinson Cancer Center	Mitch Mitchell	
Fred Hutchinson Cancer Center	Sandra Olson	
Fred Hutchinson Cancer Center	Rusty Thurman	
Fred Hutchinson Cancer Center	Lisa Getzendaner	
Fred Hutchinson Cancer Center	Jourdan Cruz	
Fred Hutchinson Cancer Center	Erica Karlovits	
Fred Hutchinson Cancer Center	Tiffany Saelee	
University of Washington Medical Center	Hal Ungerleider	
Fred Hutchinson Cancer Center	James Hnida	
Fred Hutchinson Cancer Center	Masumi Oshima	

Participating Organizations		
Northwest Healthcare Response Network	Vicki Sakata	
Fred Hutchinson Cancer Center	Marija Markovic	
Fred Hutchinson Cancer Center	Greg Higgins	
Fred Hutchinson Cancer Center	Brenda Sandmaier	
Fred Hutchinson Cancer Center	Janel Minty	
Fred Hutchinson Cancer Center	Corbin Powell	
Fred Hutchinson Cancer Center	Kira Banomi	
Fred Hutchinson Cancer Center	Madeleine Yaple	
Northwest Healthcare Response Network	Mirah Pede	
Fred Hutchinson Cancer Center	Tiffany Saelee	
University of Iowa Health Care	Rhonda Evans	
University of Iowa Health Care	Darren Pemberton	
University of Iowa Health Care	Susan Curtis	
University of Iowa Health Care	Travis Witham	
University of Iowa Health Care	Brenda Byram	
County Public Health	Nate Savage	
University of Iowa Health Care	Alex Trannel	
University of Iowa Health Care	Barb Schuessler	
University of Iowa Health Care	Bob Kwiat	
University of Iowa Health Care	Sam Patel	
University of Iowa Health Care	Jon Garringer	
University of Iowa Health Care	Alex Barnett	
University of Iowa Health Care	Josh Radke	
University of Iowa Health Care	Kari Wellnitz	
University of Iowa Health Care	Norma Miller	
UNC Health	Rebekah Sherer	
UNC Health	Diane Murillo	
UNC Health	Kim Kasow	
UNC Health	Danny Willner	
UNC Health	Ben Smith	
Presbyterian/St. Luke's	Julie Sinnema	
Presbyterian/St. Luke's	Tara Gregory	
Presbyterian/St. Luke's	Nicole Stephens	
Presbyterian/St. Luke's	Michelle Kosik	
Presbyterian/St. Luke's	Trista Carelock	
Presbyterian/St. Luke's	Stephanie Marcus	
Presbyterian/St. Luke's	Bryan Fuller	
Presbyterian/St. Luke's	Kathryn Zoll	
Presbyterian/St. Luke's	Christopher Mailliard	
Stanford Hospital	Laura Jackson	
Stanford Hospital	Jose Pluguez	
Stanford Hospital	Beth Wu	

Participating Organizations		
Stanford Hospital	Matt Tooman	
Stanford Hospital	Rudy Arthofer	
Stanford Hospital	Salma Mansour	
Stanford Hospital	Alyssa Burgart	
Stanford Hospital	Su Johal	
Stanford Hospital	Meredith Masters	
Stanford Hospital	Theresa Shea	
Stanford Hospital	Sally Arai	

APPENDIX C: PARTICIPANT FEEDBACK

RITN Centers were asked to provide feedback via an online questionnaire following the exercise. The comments below are organized by observed strengths, challenges, and recommendations for future exercises.

Participating hospitals in the July 18, 2024, exercise were asked to rank the usefulness of the tabletop exercise; **62.5% rated it as "Very Useful" and 37.5% rated it as "Somewhat Useful."**

Strengths

- *Having policies in place and alternate care sites designated.*
- *Community partnerships are strong and work well.*
- *Lessons learned from COVID and the Tri-demic are fresh and scalable.*
- *Our work with our community partners would greatly increase our outpatient capability.*
- *I believe our organization has great leadership and each team member feels valued which led to unique conversations and participation. We have partnered well with our manager of the safety, security and emergency department who has a great deal of knowledge surrounding the local and state level of support and commitment.*
- *Fred Hutch's collaboration with UW and Washington's States health care coalition and government coordination is a strength.*
- *We have many locations available to us to use as a triage/decon/treatment area due to our location and being a healthcare system.*
- *Pre-Identified location established for patient reception and care (at least for first wave of patients).*
- *Ability to come together with a very multidisciplinary team to problem solve and validate/develop plan components. Discovered a few areas to improve upon to include into our plan (CSC language in RITN plan, laboratory screening and guidance from Health Physics).*

Challenges

- *Lack of resources.*
- *Being one of very few pediatric care sites across the state, off-loading is difficult.*

- *Reunification or foster parent support is very difficult and limited.*
- *As most of the CBC supplies have limited vendors, supply chain issues would be raised. Relying on the government for supplies to support this would be slow (as learned from COVID).*
- *The biggest challenges responding to a radiation mass casualty incident seemed to be a recurring theme including staff and space.*
- *Staffing would be a challenge for our center. Making sure we can provide care to our existing and new cancer patients.*
- *Good standard communication within our community so Fred Hutch doesn't get inundated with patients, family, community and media requests.*
- *I feel like the exercise would be easier if we had more specific numbers (such as you receive 10 patients through NDMS and 5 walk-ins). It was really difficult to relay what our capacity would be and ability to treat with broad information.*
- *Some of the questions we had to answer them differently than they were asked because a lot of the stuff we do is in-house. We are not heavily reliant on resources such as our Healthcare coalition until necessary.*
- *As a pediatric specialty hospital, capacity is always an issue. Existing expectations to accept all moderate to high-acuity patients can greatly impact surge capacity. Even with alternatives mentioned above for surge management, overall capacity for acute inpatient care is on the lower end of the spectrum.*
- *Outpatient monitoring and follow-up is a challenging component and will continue to coordinate between available provider, lab operations and resulting, and provider/responsible parties at alternate sites/shelters.*
- *We do not do this enough and so many staff are unaware of the plan and even existence of threat/ramifications.*

Future Exercises

- *Addressing initial actions needed to prepare for victim arrival.*
- *Assessing medical toxicology resources & blood supply available.*
- *Developing messages to keep everyone informed.*

- *What it would look like from the community perspective.*
- *Additional focus on support for outpatient needs (what would the community do to support?).*
- *We would like to hear more about the radiation side effects and treatment options.*
- *If they can further break down casualty numbers and give estimates per region for this exercise. Knowing what to expect on days 3 through 30 would be helpful.*
- *Collaboration/coordination with FCCs activated and the response partners involved in establishment of FCC and transport/distribution of patients/evacuees.*
- *Additional considerations on patient tracking opportunities. While our focus is on a singular, large-scale radiological event and RITN organizational response, what capability (if any) exists, or what guidance can be taken, should this be an event with multiple radiological releases in disparate geographical regions?*
- *Medical decisions / triage (with radiation levels for decon) with numbers of patients that we need to place into inpatient and outpatient care.*
- *Pharmaceutical utilization/need.*
- *Blood utilization and need.*

APPENDIX D: ACRONYMS

Acronym	Term
AAR	After Action Report
ACS	Alternate Care Site
ARC	American Red Cross
ARS	Acute Radiation Syndrome
BMT	Bone Marrow Transplant
CBC	Complete Blood Count
CISM	Critical Incident Stress Management
CSC	Crisis Standards of Care
EAP	Employee Assistance Program
IND	Improvised Nuclear Device
JIT	Just-in-Time
MRC	Medical Reserve Corps
NDMS	National Medical Disaster System
ONR	Office of Naval Research
RITN	Radiation Injury Treatment Network
SitReps	Situation Reports
SME	Subject Matter Expert
TTX	Tabletop Exercise